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## WHERE DENTISTRY LOOKS OVER INTO ORAL SURGERY.

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THE invitation from your executive committee to read a paper on oral surgery before this convention contained the injunction to "make it especially interesting to dentists." While I can conceive of no phase of this subject which should *per se* be uninteresting to dentists, and no treatment of it fit to be rehearsed before intelligent practitioners which should not attract and hold their attention as well worth the time occupied in listening to it, because of its relation to their own specialty; yet, recognizing that there are degrees of interest even in this, to me, fascinating study, and mindful of the injunction laid upon me, I shall confine myself to the consideration of aspects of oral surgery of which glimpses are seen almost daily in the practice of dentistry.

First, let us understand clearly the province of oral surgery. Briefly, it is that branch of surgery which comprises the treatment, usually by operative procedures, of the various lesions involving directly and indirectly the mouth, including the teeth and jaws, and the face and associated parts.

Surgery, like medicine, is too broad and too complicated to be compassed in its every differentiation to the degree required in these days of perfected technique, by any one mind. Every department requires, for the attainment of the best results, concentration of the entire thought upon the particular set of organs involved almost to the exclusion of the remainder of the body, bearing in mind only the fact

that other parts may exert an influence by contiguity or by physical or physiological relations, or may become involved by reflex or circulatory action. This concentration and study of minutiae, with the daring experimental work begotten of more thorough knowledge thus gained, are the secret of the present status of the various specialties in medicine and of the vastly better results of practice by specialists now than in former times, when each practitioner endeavored to cover the entire field.

It is the little things, which because of their littleness are unrecognized and their proper treatment overlooked, that often lead to the most confusing complications. The large tumor, readily detected by any one, requires far less skill to understand as a cause of suffering than does an apparently causeless pain which is finally shown to have been reflected by the sympathetic nervous system from a distant point of irritation.

Oral surgery includes, if you please, in the broader sense, the duties of the dentist. The entire territory over which it assumes jurisdiction is so closely related to that which occupies the thought and confines the effort of the dentist that, other things being equal, there is no question that the best oral surgeon is he who has the most thorough knowledge of dentistry. The eye and the touch of the trained dentist are exquisitely educated to detect small things, and he has an understanding of the mouth and its relations that are even yet unattainable except through the education which has made him a dentist. It is a truism that very recently the general practitioner of medicine knew less of the anatomy and diseases of the oral cavity than of the same facts concerning any other portion of the body. Happily, a more enlightened system of medical education now recognizes the importance of a knowledge of the mouth and its nervous connections, though the study of its special relations is as yet left almost entirely to the dentist.

The reflex nervous system of the human body is often likened to the wires of a great telegraph system. As the touch of the operator's hand upon the key of the transmitter pulsates to the remotest terminal of the wires, so the slightest sensation at any point of the body finds a response throughout the entire nervous system. Thus, a slight disturbance of the equilibrium at one point may be indicated by a neural symptom which finds expression far away from the actual seat of trouble. It is in the elucidation of such problems that the special knowledge of the specialist becomes invaluable. It requires, for instance, an intimate acquaintance with the oral cavity such as only practitioners of dentistry possess to diagnose many of the troubles



which fall within the province of oral surgery. Dentists cannot all be oral surgeons, but it is competent for all of them to be diagnosticians.

There is little doubt that almost all the distressing troubles which are found in the head and neck originate within the distribution of the trifacial nerve. In the great majority of instances they can be traced directly to the teeth. Diagnosis by exclusion is perhaps the most satisfactory means of determining the cause of a given lesion. When this is found, the obvious rule is to remove it. But the organism requires every part for the preservation of the proper balance, and conservatism says that a diseased part which can be restored to a normal condition must not be sacrificed; only that which cannot be made healthy may be removed. Thus, if the pulp of a tooth is the disturbing element, the tooth need not be extracted. A pulp which is exposed may be restored to its normal state and protected from further irritation.

That you may more readily comprehend the possibilities of ordinary lesions in the mouth causing more or less serious disturbances in other portions of the economy, a few cases which I have observed and treated are here briefly outlined.

The first is that of a young woman who applied to a surgeon for treatment of a fistulous opening under the chin, from which a moderate but constant discharge of pus flowed. Suspecting alveolar abscess, the surgeon referred her to a dentist, who returned a negative report. The lower ridge of the maxillary was then drilled and scraped, which apparently affected a cure; but in a few weeks the fistula again appeared, and was treated by a second and more heroic drilling. In two months the fistula reappeared, close beside the ugly scar of the first. Another dentist was then consulted, and he readily detected, with an electric lamp, a dead pulp in an inferior incisor. The tooth was then drilled into, the canal cleansed, disinfected, and filled, and although that was four years ago there has been no return of the fistula.

This case is typical of a considerable class due to devitalized pulps, where the abscess selects a distant part of the body as an outlet or drainage-point. I have seen fistulas from this cause opening far down upon the neck or upon the back or breast, and have known them to be treated for years before a dentist discovered the offender, much to the surprise of the surgeon. They have in more than one instance caused suspicion of abscessed lung, liver, etc.

Another case illustrates reflex irritation through the sympathetic nervous system. After nearly three years' treatment for a persistent rheumatism of the left shoulder, the patient had a left superior molar

treated and filled which had been abscessed for several years. Considerable necrosed bone was burred away from about the upper third and for some distance beyond the ends of the roots. Within two days the tooth recovered its former comfortable condition, and with its restoration to health the pain in the shoulder ceased, and the first symptom of its return has yet to be observed, five months since the operation. This same patient had a bridge adjusted in the right side of the mouth with the posterior end attached to the second molar. The third molar contained a large gold filling on the mesial surface, which came almost in contact with the bridge. Two months later the patient experienced pain and stiffness in the articulation of the inferior maxillary on the right side, with a heavy, dull feeling in the ear on the same side. This continued with considerable severity for twelve hours. Treatment ameliorated the distress, but it was never intermitted for a single day until it was discovered that an electric current had been established between the bridge and the filling, and by electrolysis the pulp had become exposed, causing the symptoms described, by reflex action. The diagnostic test was the placing of an insulator of gutta-percha between the crown and the filling, when the patient was relieved instantly, the entire train of symptoms disappearing at once. I do not wish to be understood as claiming that there was an electrical action between the bridge and the filling, but merely that the introduction of the bridge upon the roots closed the circuit along the nerve-tract; whereas, without the bridge, the electrical action was wholly confined to the filling and the decalcified dentine covering the pulp.

The history of dentistry is full of instances of pain reflected to almost every part of the body from affections of the teeth. Thus, in a case where the arm was paralyzed, the paralysis disappeared with the treatment of an exposed tooth-pulp. In another instance, the removal of a large area of necrosed bone and the restoration of the remaining tissue to normality was followed by the re-establishment of the catamenia, which had been suspended. Another curious case is that of a patient who was confined to his bed for several days with rheumatism involving one entire side of the body. The attack followed a severe toothache, and the pain ceased with the relief of the affection of the tooth.

These are extreme illustrations, but they show how far and in what diverse directions reflexes from the teeth may ramify. The fact that they do occur only serves the more forcibly to emphasize the need of a thorough knowledge on the part of the surgeon of the relations, near and remote, of the oral cavity.



To return to what is more properly our subject—a partial survey of the border-land between dentistry and oral surgery—the cause and effects of mouth-breathing require a passing notice. Whether mouth-breathing is a cause of the irregularities accompanying the high vault and contracted jaw is just now a disputed question, to the clearing up of which Dr. Talbot contributed a valuable paper at the recent meeting of the American Dental Association; but that it does result in deformity or asymmetry of the face there is little room to doubt. Mouth-breathing is usually due to obstructions in the nasal passages, the most prolific of these obstructions being found in the upper part of the pharynx, in the shape of adenoid growths. These growths are engendered at all ages, and unless quickly removed, especially in the case of children, irreparable mischiefs will be wrought. Frequently dentists are consulted by parents with the idea that irregularities of the teeth are the cause of mouth-breathing in their children. In such cases they may be able to do much good by suggesting the importance of attention to any possible obstructions of the character here referred to. Of course the condition is not confined to childhood, but whenever present it can only be rectified by surgical treatment.

The antrum is the seat of a variety of diseases which are by no means readily diagnosed. This cavity is lined with a mucous membrane of the same nature but more delicate than that of the mouth, and is therefore more readily disturbed, and owing to its form and position, its drainage in case of pus-formation is more difficult. When inflammation, however slight, has once been set up within, it is ever after in an irritable condition; and when pus finds its way to this almost closed cavity, the work of destruction of its mucous membrane begins, and unless promptly checked the bony tissue adjacent to the diseased part falls a prey to the destructive pus-cell.

Among the causes of affections of the antrum, the teeth and their diseases stand first. You can readily understand how an abscessed tooth can light up an immediate inflammation in the antrum when you recall the fact that it is not uncommon for the teeth to extend into the antrum—the impingement varying from the mere penetration of the end of the root to the extent of half of it, with only the mucous membrane intervening. If the pulp of such a tooth becomes putrid, the poisonous influence soon extends to the surrounding tissue. There is no resistance as when the root is enveloped in bone; consequently soreness of the tooth, one of the first symptoms of periodontal inflammation, may not be present. Long-continued pulpitis may produce a like inflammation in the antrum. Alveolar abscess should be cured as soon as detected, for obvious reasons.

The common practice of extracting these teeth is unjustifiable. It is true that that procedure often results in a cure of the antral trouble. Why not remove only the putrescent pulp and any necrosed bone, and treat the pathological conditions surrounding the root? Too few physicians place the proper importance on the saving of the teeth, and I regret to say that there are dentists also who do not appreciate the gravity of the loss involved in the wanton sacrifice of a tooth.

Inflammation of the antrum may also arise from a severe "cold in the head"—catarrhal inflammation—when the mucous membrane is generally congested, which condition extends to the antrum; and after the posterior teeth become loose and sore, if the inflammatory state is persistent, the trouble may become chronic. From this condition of the antrum the pulps of the teeth may in turn suffer even to the extent of devitalization, when we have a permanent cause for abscess without external origin. The non-eruption of the teeth is not infrequently the cause of a purulent condition of the antrum, which is difficult to detect, as only in marked cases is there free discharge of pus from the nares, or the formation of a tumor to guide to the point of disturbance. The nervous system is under a constant strain where this purulent condition of the antrum exists. In two cases recently observed, one of the patients had shown marked symptoms of insanity, and the other was insane during three months of the twelve for several years, prior to operation, and her nurse informed me that previous to the clearing of the mind, a free discharge of pus from the nose was observable. Frequent and persistent neuralgias can also be attributed to a purulent antrum.

I think it possible that mechanical irritation from the roughened surface of an artificial denture may cause serious antral trouble. The palatal surface of vulcanite plates, especially, is apt to be a source of irritation unless all roughness, such as occurs from bubbles in the plaster, etc., is carefully polished off. A case recently presented, in which the plate was rough from this cause, and it seems reasonable to hold it responsible for a cancerous growth involving the entire space covered by the plate. When constant irritation and congestion of the mucous membrane follows the introduction of an artificial denture, it should be removed and substituted by a material which is non-irritant.

In this brief and somewhat disjointed sketch I have endeavored to note a few of the points in which the dentist and surgeon meet on common ground, and in which the skill of the one must be supplemented by the knowledge of the other. More and more cases will be referred to you by the physician and surgeon for diagnosis and

treatment of that which comes within your purview. Sometimes the process of exclusion will assure you that the teeth are not involved or at fault. In that event the patient passes to the next specialist for his examination, but it behooves you to *know* the territory to which your life-work is devoted, to the end that you may render the greatest possible aid in the alleviation of suffering.



